Policy Uncertainty and the Economy: A Review of the Literature

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Overview

• I. A historical perspective
• II. Basic intuitions (they’re not so intuitive)
• III. Forebears of the modern literature
• IV. Uncertainty index literature
• V. Election-based literature
• VI. Contemporary implications: trapped in an uncertainty-induced economic dystopia?
Historical perspective

• The influence of uncertainty on economic activity has been studied since the genesis of the modern economics discipline.

• But new computational developments and statistical innovations have allowed for empirical studies of unprecedented scope.
“If we expect large changes but are very uncertain as to what precise form these changes will take, then our confidence will be weak...The state of confidence, as they term it, is a matter to which practical men always pay the closest and most anxious attention. But economists have not analysed it carefully and have been content, as a rule, to discuss it in general terms.” – John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (1936)
Uncertainty: the new testament

- New technologies have facilitated a blossoming of rigorous empirical analyses.

- Scott Baker, Nicholas Bloom, and Steven J. Davis (2013) created an index that measures policy uncertainty at the monthly and even daily frequencies using modern programming. Many studies have utilized this index.

- Other studies, for example, analyze thousands of companies in several different countries.
Good uncertainty: illustrated

Gains from the “good” state exceed losses from the “bad” state: area $A > area B$:
The benefit of delay: an example

- Even if the furnace has a positive expected value today, delaying until tomorrow increases the expected value of the prospective investment.

<table>
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<tr>
<th>Today</th>
<th>Tomorrow</th>
<th>Expected return</th>
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<tbody>
<tr>
<td></td>
<td>If goods news</td>
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<td></td>
<td>(Probability = .5)</td>
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<tr>
<td>Pay $100</td>
<td>Earn $400</td>
<td>$100</td>
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<td>Earn nothing/eat loss</td>
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Scenario 1: The expected profit if you buy a new gas-powered furnace that costs $100 today, even though it has an uncertain return tomorrow.

Scenario 2: Expected profit if you wait and decide whether to purchase the furnace tomorrow, when you already know whether the price of gas has increased.

Pay nothing  | Earn $400-$100 = $300 | $150

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Basic intuition: risk vs. uncertainty

A tale of Keynes’s two urns

- **Urn I**
  - 50% white marbles

- **Urn II**
  - Some white marbles
  - Some black marbles
Basic intuition: risk vs. uncertainty

• Keynes (1921): imagine two urns filled with white and black marbles.
  – Urn I: you know white and black marbles are present in equal proportions.
  – Urn II: you have no information on the specific proportions of the white and black marbles.

• What is the rational forecast for the probability that you draw a white marble and win the bet? 50% in both urns.
  – In spite of this quantitative equality, a man facing Keynes’s second rather than first urn clearly faces
Forebears of the modern literature

• User-cost of capital literature dates back to early 1960’s (e.g., Jorgenson 1963).

• By the late 1980’s and early 1990’s, the literature developed formulations of the user cost of capital that incorporated current and future expected values of capital (e.g., Auerbach 1989 and Abel 1990).
  – Models dropped the assumption of certainty, and the developed the implications of dropping this assumption (e.g., Auerbach and Hines 1988).
Modeling policy uncertainty

- Early models of irreversible investment tended to rely on driving processes that are Geometric Brownian Motion.
- Tended to find that uncertainty is harmful.
- Hassett and Metcalf extended to include a jump process and a mean reverting process, and found that uncertainty can enter in 2 ways.
  - ITC example
  - State switching example
Theoretical effects

• Hassett and Metcalf revived the “uncertainty paradox”.

• Subsequent work had identified the conditions under which uncertainty can have large negative effects:
  – The direction of the policy change is uncertain
  – A threshold is (at least probabilistically) on the horizon
  – Investment is irreversible
Uncertainty index literature

• Draws on Bloom, Baker, Davis (2013) index.
  – Notable exception: Veugler and Shoag (2013) develop an index of their own.

• In general, associates increases in the economic policy uncertainty index with deteriorations in real economic activity and in financial asset markets.

• A number of micro studies are finding nuanced results that are consistent with implications of theoretical literature.
  – Gulen and Ion (2013), notably, find that investment drops are bigger for firms that invest in more-
Uncertainty index literature

- Attempts to draw causal inferences from policy uncertainty to economic conditions face a potential problem of omitted variable bias.

- Suppose the economy enters a “bad and uncertain” state wherein the future path of economic conditions becomes very uncertain. If economic policy responds to economic conditions, then it is possible that…:

  Bad and uncertain state $\rightarrow$ Bad
Election-based literature

• Examines investment activity both in financial markets and in the real economy in the period leading up to national elections.
  – Elections are in some cases “exogenous.”

• Cross-national and cross-state analyses suggest that investment falls before elections.
  – Financial markets show evidence of an “uncertainty risk premium” in the run-up to an election.
  – Real investment expenditures of domestic firms and real investment from foreigners (FDI) decline
Election-based literature II

• But the “uncertainty risk premium” may just be the logical consequence of the well-documented distributional effects of election outcomes on the returns of individual securities.

  – Evidence from US states and elsewhere suggests that who wins election alters which securities do and do not outperform the aggregate national market.

  – Elections take excess returns from some stocks and give it to others.

  – In a world without perfect foresight, risk-averse investors would require additional compensation for holding
Uncertainty in the election cycle

Policy uncertainty and equity valuations through the election cycle

Months away from a presidential election month

- Economic policy uncertainty index (from Baker, Bloom, and Davis)
- P/E ratio of the S&P 500
Today: uncertainty-induced dystopia?

• In spite of these qualifications to the literature, preponderance of evidence suggests that uncertainty has detrimental effects and tends to spike near elections.

• A simple examination of the Bloom, Baker, and Davis index showed that uncertainty spikes during near mid-term and presidential elections.
Today: uncertainty-induced dystopia?

• Robust results from Nishide and Nomi (2009) indicate that as a threshold event nears, optimal behavior is to act as if the worst case scenario had materialized.

• Bernanke (1983): investors weigh lost revenues between now and the threshold event as the cost paid for the benefit of gaining the option-value from delaying investment until after the event.

• The opportunity cost from delaying a
Tomorrow: uncertainty-induced dystopia?

• Interest rates remain near record lows both in the US and across the developed world.
  – Even a rate hike, though a marginal increase, would likely leave the absolute level of interest rates not far from this record low.

• National elections in the US happen every two years.
  – Modern presidential elections, in particular, fit the Hassett and Metcalf (1999) model of an event that would be expected to have severe effects: *ex ante* outcome probabilities hover near 50%, and the trend toward greater political polarization widens the spread between the stated policies that each candidate endorses.
Conclusion

• **Modern knowledge of old topic of uncertainty has developed rapidly due to exciting new techniques in recent years.**
  – But, as always, important to maintain healthy skepticism and think deeply about new results.
  – Risk vs. uncertainty distinction seems like possible grounds for tempering interpretations of some of the studies in this growing literature.
    • See Hassett and Sullivan (2015) for a review of individual studies.

• **Uncertainty remains an enduring and important topic of economic study.**